AGP

THE WORLD'S LEADING MANUFACTURER OF

AMERICAN GAS PRODUCTS CORP.
DIVISION OF
AMERICAN RADIATOR & STANDARD SANITARY CORP.
NEW YORK

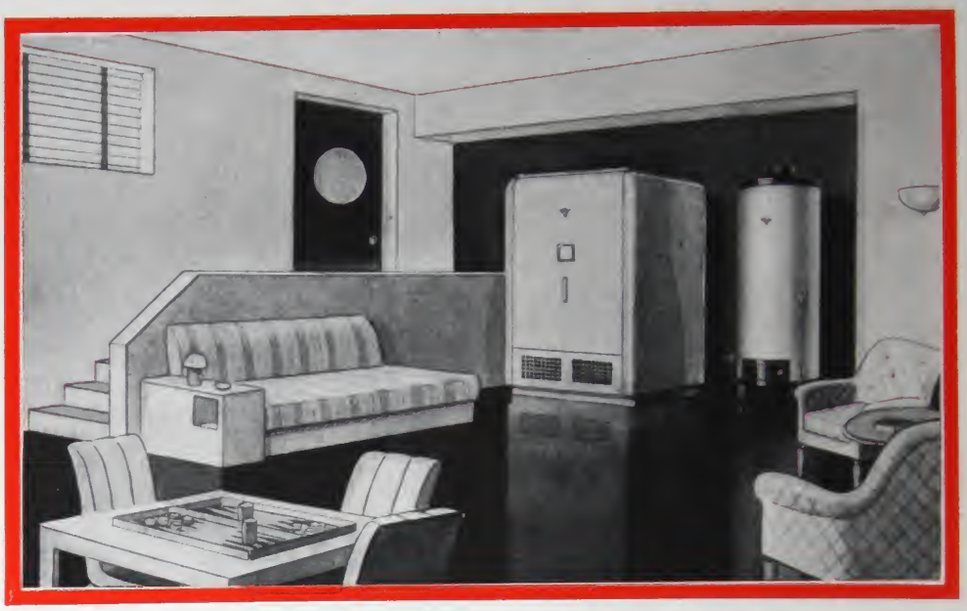
GAS

HEATING, HOT WATER and AIR CONDITIONING APPLIANCES

A. I. A. File No. 30

AGP Automatic Gas-Fired Heating Equipment

By—



AGP automatic gas-fired equipment permits conversion of basement space to useful living area. Accompanying illustration shows an AGP Empire Ideal Boiler and an AGP Clipper Water Heater. The attractive gun-metal baked enamel finish of the equipment, complete elimination of soot, dirt and fuel storage, and automatic control transform the old dusty basement to a room for study and recreation.

AGP Gas-fired Automatic Heating Equipment is manufactured in an inclusive range of types and sizes for serving every domestic heating need. Any type of heating medium—steam, vapor, water and air—may be used with AGP gas-fired equipment. In addition to complete combinations of equipment designed for original installations, a line of gas convertors is manufactured for converting installed coal or oil-fired boilers or furnaces to automatic gas-fired systems.

CHARACTERISTICS OF GAS-FIRED HEATING

Gas-fired heating differs essentially from other types of heating in (1) cleanliness; (2) flexibility and greatest adaptability to automatic control; and (3) constant efficiency. Because of the nature of gas the process of combustion, once started, may be controlled automatically and mechanically maintain a desired room temperature with room thermostat controlling the operation of a valve. The efficiency of gas-fired boilers is very nearly constant, the A.G.A. approval gives a gas boiler output rating of 80% of the input.

COMPARATIVE ECONOMY

Cost of heating by gas will vary with the rate structure of the gas utility operating in a given locality, on the Btu content of the gas, climatic conditions and type and quality of building construction. Cost comparison with other fuels will likewise vary widely with specific local factors, such as the relative efficiencies of the different fuels, and the delivered efficiencies of the operating installations selected for comparison.

Gas-fired equipment, because of its relatively high efficiency, shows especially favorable results when used to heat spaces fully provided with building insulation. In addition, those items of expense which are not immediately apparent, are either entirely eliminated or are considerably diminished. Among such items are: Labor (attention to heating plant, emergency repair service, etc.); Service charges for adjusting and cleaning burners, flues, etc.; Equipment costs and depreciation; Electric charges for operating motors, fans and other accessories; and such intangible but important items as omission of basements, or basement space made available for living or recreational quarters.

RANGE OF PRODUCTS AND APPLICATION

The complete range of AGP products is described in these sheets. Full descriptions, capacity ratings, specifications, overall dimensions, data on controls and recommendations for installation are given in the following pages:

AGP Ideal Standard and AGP Ideal Empire Gas-Fired Boilers for any steam, vapor or hot water heating system or for a hot water supply system, either direct or indirect. See pages 4 and 5.

AGP Air Conditioners Type 2-FE and Type K for complete automatic filtered and humidified warm-air heating by forced circulation. See Pages 6 and 7 and 8 and 9.

AGP Gas-Fired Floor Furnace for ductless warm air heating by gravity circulation. See page 8.

AGP Gas-Fired Gravity Furnaces for warm air heating without forced circulation. See page 9.

AGP Gas Convertors for converting existing coal or oil-fired boilers on steam, vapor or hot water systems to completely automatic gas-fired units. See page 9.

AGP Water Heaters for automatic storage type domestic hot water supply. See pages 10 and 11.

*

SELECTION OF GAS-FIRED EQUIPMENT

Heat-generating capacity of gas-fired equipment can be predicted accurately within one or two percent and is not affected by condition of fuel bed or soot accumulation. Consequently all gas equipment is rated according to hourly Btu output, namely amount of steam or hot-water heat available at outlet of boiler, or warm-air heat at bonnet of furnace. Btu output rating is based on approved American Gas Association Btu input rating and A.G.A. approved average efficiency.

Output ratings may be converted to equivalent steam radiation by dividing by 240, and to equivalent water radiation by dividing by 150.

All AGP equipment is rated on the following pages according to A.G.A. output ratings (either in Btu/hr. or sq. ft. of radiation), and also according to square feet of direct C.I. radiation supplied. The latter rating is arrived at by deducting from the first, factors for piping load loss and starting load as approved by the A.G.A.

To select AGP equipment of proper capacity, calculate total heat loss in Btu of space to be heated, according to standard methods.

This total heat loss, expressed in Btu or square feet of radiation, should be equal to or not greater than AGP rating for square feet of direct C.I. radiation supplied (in the case of a steam or water boiler) and equal to or not greater than output at registers (in the case of a warm-air furnace).

For preliminary calculation or quick check on the adequacy of a boiler in buildings where glass area does not exceed ¼ of

*AGP Gas-fired Steam Radiators and Unit Ors for vented or non-vented direct space heating. See Pages 8 and 9.

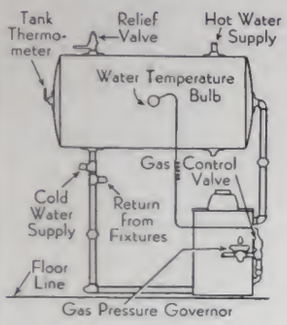
AMERICAN GAS PRODUCTS CORPORATION 40 WEST 40TH STREET
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION NEW YORK, N.Y.

1052 -

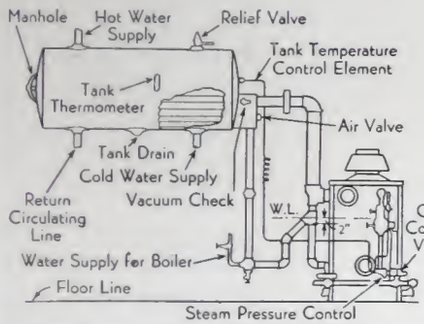
AGP Automatic Gas-Fired Heating Equipment

By—

I - DOMESTIC HOT WATER SUPPLY



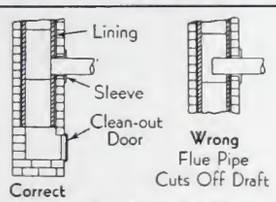
DIRECT SYSTEM
D W Equipment
Boiler directly connected to storage tank. Recommended boilers: Types 1-GA, 2-GA, 4-GA



INDIRECT SYSTEM
I S Equipment
Heat Exchanger used (Excelso type or submerged pipe coil)

II - FLUE RECOMMENDATIONS

FLUE SHAPES



FLUE CONNECTIONS

FLUE SIZES

Boiler No.	Diameters (inches) Round Flues for Chimney Hts. of: *10'	40'	70'	Boiler No.	Diameters (inches) Round Flues for Chimney Hts. of: *10'	40'	70'
0-G- 4	5	5	5	4-G-22	23	20	16
0-G- 5	5	5	5	4-G-25	24	20	16
0-G- 6	6	6	6	4-G-28	26	20	16
0-G- 7	6	6	6	4-G-31	26	22	20
1-G- 4	6	6	5	4-G-33	28	22	20
1-G- 5	7	7	6	4-G-37	30	22	22
1-G- 6	8	7	7	4-G-41	32	24	22
1-G- 7	8	8	7				
1-G- 8	8	8	8	*2 Boilers*			
1-G- 9	9	9	8	4-G-21	31	24	20
1-G-10	9	9	8	4-G-22	32	26	21
1-G-11	10	9	9	4-G-25	34	26	23
				4-G-28	36	28	24
4-G- 6	11	10	9	4-G-31	38	28	26
4-G- 7	12	10	10	4-G-33	40	28	26
4-G- 8	13	11	10	4-G-37	42	30	28
4-G- 9	14	11	10	4-G-41	45	30	28
4-G-10	15	12	11				
4-G-11	16	13	12	*3 Boilers*			
				4-G-28	45	32	28
4-G-13	17	14	12	4-G-31	48	32	30
4-G-15	18	14	13				
4-G-17	20	15	14	4-G-33	50	32	30
4-G-19	21	16	15	4-G-37	52	34	32
4-G-21	22	18	15	4-G-41	55	36	34

* Flue sizes for 10-foot chimneys are for special installations where greater height is impossible or impracticable. Not recommended for general practice

Heights are measured from the boiler.

If other than round flues are used the area must be the effective equivalent of the round flue

total wall area, the following (adapted from Mills' Rule) will be found useful.

$$\text{Sq. Ft. of steam radiation} = \frac{G}{2} + \frac{W}{20} + \frac{C}{200}$$

$$\text{Sq. Ft. of hot water radiation} = \left(\frac{G}{2} + \frac{W}{20} + \frac{C}{200}\right) \times 1.6$$

G = area of glass in square feet.
W = net area of exposed wall (plus floors and ceilings if exposed).
C = content of building in cubic feet.

SPECIFICATION

When ordering AGP equipment, the following information should always be specified: (1) Identifying number and symbol of equipment unit; (2) Identifying number(s) and symbol(s) of control equipment; (3) Characteristics of available gas supply: type (manufactured, natural or mixed), Btu content, specific gravity and pressure; (4) Characteristics of available electric energy: voltage, phase and cycle where electric room temperature controls are involved.

A short form specification will be found adequate as follows: "Furnish and install according to manufacturer's instructions, where shown on the plans an Empire Ideal (or Standard Ideal) Steam (or Water) Gas Boiler with an A.G.A. output rating of ....sq. ft. of radiation. The boiler shall be manufactured by the American Radiator Company and shall be completely equipped with Type .... Equipment consisting of ..... (list items of equipment)".

This should be supplemented with paragraphs governing installation of gas supply, piping, ductwork, connections, tests, etc., as required.

INSTALLATION

Installation of all AGP equipment should conform to the following standards of good practice:

Location should allow proper clearances for all connections and controls and permit servicing. Where in a confined space, a suitable opening to outside air, 144 square inches in the clear, for the average residence installation, should be provided for adequate air supply.

Gas connection: at least equal in size to governor size with minimum number of bends and in accordance with recommendations of the local utility.

Governor vent connection: ¼" vent piping from relief opening in governor to outside point 3' above ground, with elbow faced downward, or as directed by local utility.

Flue connection: not less than full size of opening at draft-diverter and pitched upward from unit connection to flue. Separate flue to be provided, without other connection to flue.

Water connection: where required, should include valve or stop-cock close to unit.

Duct system: where required, ducts should be galvanized iron or steel with double locked seams and jointed with standard "S" drive clips. Rectangular ducts shall be in accordance with the following table:

Gauge	Width of Duct	Seam	Reinforced Seam
26	Up to 12 inches	1"	———
24	13" to 30"	1"	⅛" x 1"
22	31" to 48"	1"	⅛" x 1"
22	49" to 60"	1½"	⅛" x 1⅜"
20	61" to 90"	1½"	⅛" x 1⅜"

Where ducts pass through walls or partitions, opening shall clear duct metal by 1". Where necessary to change elevation of a duct, change should be as near 30° from horizontal as possible.

Piping: Adequate and rapid venting of air from steam heating systems is recommended to give maximum economy and minimum temperature variation.

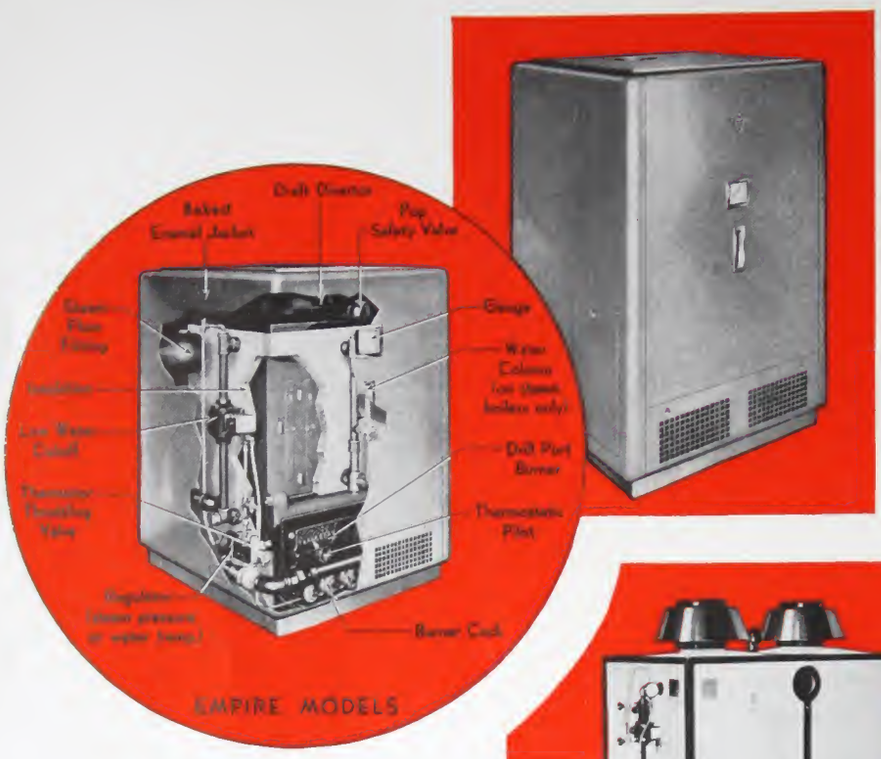
Insulation: Insulation of pipe lines in steam and hot water systems tends to cut down pipe losses and increase the efficiency of the system. Ducts run through unheated garages or unexcavated portions of basement should be insulated with 1" air cell asbestos or equal. Warm air risers, if on outside walls, should be insulated with 1½" air cell asbestos. Other warm air risers should be covered with asbestos paper.

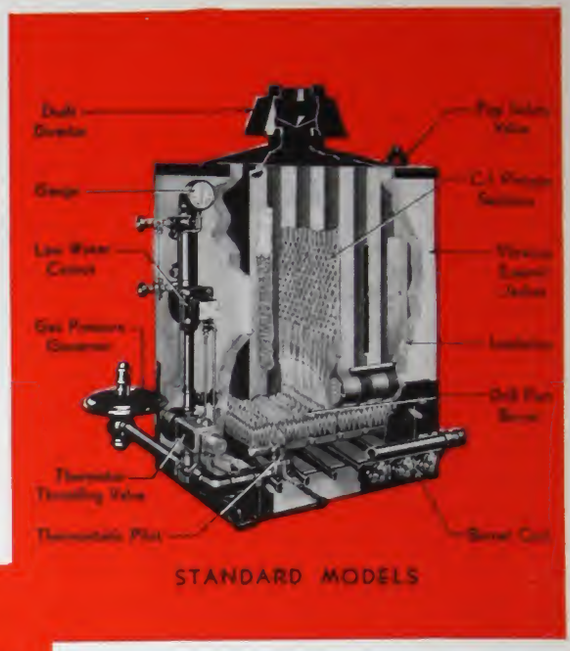
Flues: A flue of adequate size and proper construction is essential to remove products of combustion from boiler room. Chimneys should be of good construction, preferably lined with glazed tile or terra cotta with carefully filled cement mortar joints. For recommendations on sizes and shapes refer to Table I.

40 WEST 40TH STREET NEW YORK, N.Y.
AMERICAN GAS PRODUCTS CORPORATION
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

AGP Gas Fired Steam & Hot Water Boilers

By—





AGP Empire Ideal Type Boilers are illustrated top center and in phantom view above. All projections are eliminated, and controls and connections encased in a baked enamel jacket. AGP Standard Ideal Type Boilers are illustrated at the right, and in phantom view at extreme right.

DESCRIPTION

Two general types of AGP automatic gas-fired boilers are manufactured for use with hot water, vapor or steam heating systems: AGP **Standard Ideal**, with exposed trim and connections, and AGP **"Empire" Ideal**, with all controls completely enclosed in a baked-enamel cabinet type jacket, and connections arranged on the rear surface so that pipes and flues may be furred into the wall.

Forty-seven sizes are available with an output range of 163 to 11,430 square feet of direct cast-iron steam radiation; and 135 to 18,286 square feet of direct cast-iron water radiation.

Basic equipment of each unit consists of a raised drilled port burner with gas valve electrically operated from a room thermostat and mechanically controlled by steam pressure or water temperature; heat-absorbing surface of patented Pin-type C.I. sections; acid-proof vitreous enamel finished canopies and divertor; and enamelled jacket insulated with cellular composition asbestos.

Controls. All control functions of AGP Ideal boilers are centered in the **AGP Thermotor Throttling Valve** which gradually reduces gas consumption as desired steam pressure or water temperature is reached. The thermotor operates from the room thermostat and embodies a mechanical limit control. Related controls include: **Low Water Cut-off** for shutting off gas supply to main burners if water line on steam boilers reaches a low point; **Steam Pressure or Water Temperature Regulator**, for controlling supply of gas to burners according to predetermined pressure or temperature; **Gas Pressure Governor**, for maintaining gas pressure at a fixed maximum; **Thermostatic Pilot** for closing gas supply valve should pilot light be extinguished. Throttling, limit and safety pilot controls function independently of current, and valve may be operated manually in the event of current failure. Controls are integrated so as to furnish completely automatic heat without manual control.

Domestic Hot Water is supplied by AGP Ideal Boilers by means of a DW (direct water) or IS (indirect steam) system. DW system uses a direct-connection to storage tank in which temperature of the water is controlled by means of a water-temperature bulb attached to main gas-control valve with a 10 foot capillary tube. Temperature of water in the storage tank may be set by means of a dial. Valve operates either as throttling or snap-action valve.

Equipment for DW system includes: Boiler with gas-control valve, thermostatic pilot and gas-pressure governor, thermometer and temperature-pressure relief valve for storage tank. Boilers in types 1-GA, 2-GA, and 4-GA in Table I are recommended for use with DW systems and are tested to 200 lbs.

IS system uses pipe-coil or Excelso indirect water heater to transmit heat generated by steam boiler to water in storage tank. Boiler operates at constant efficiency and normal low pressure. Temperature of the water in the tank is controlled by means of an immersion element connected to main gas-control valve with 10-foot capillary tube. Temperature of the water may similarly be set by means of dial.

Equipment for IS system is similar to that for DW system plus low-water cut-off. Boilers in types O-GS, 1-GS and 4-GS are all recommended for use with IS systems.

SELECTION AND SPECIFICATION

AGP boilers should be selected in accordance with procedure outlined on page 2. Specification should include general information listed on page 2 in addition to all items of equipment appropriate for steam or water boiler as selected, i.e., steam pressure or water temperature regulator, compound steam gauge or combination altitude gauge and thermometer, etc.

INSTALLATION

Installation should conform to good practice recommendations listed on page 3.

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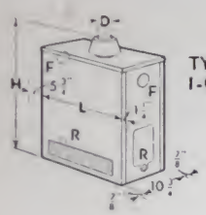
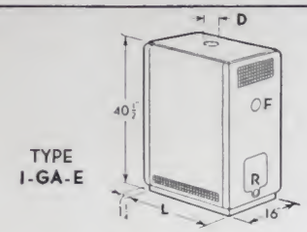
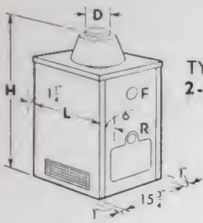
AGP Gas Fired Steam & Hot Water Boilers

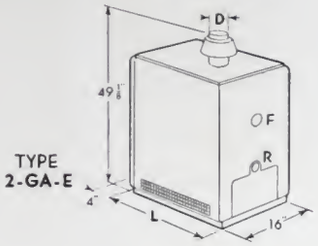
By—

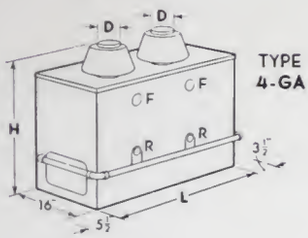
RATINGS, DIMENSIONS and CLEARANCES

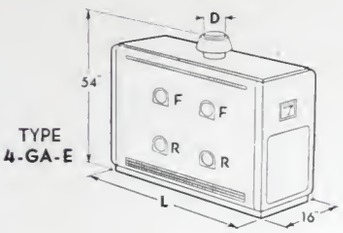


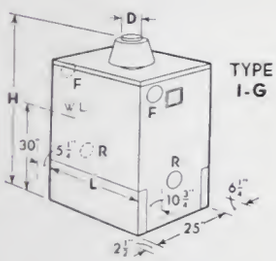


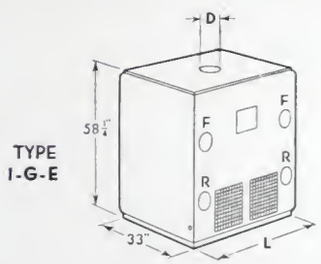


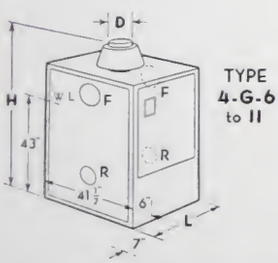


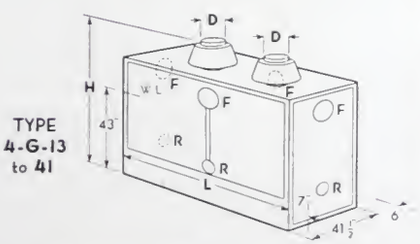






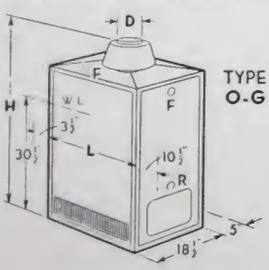


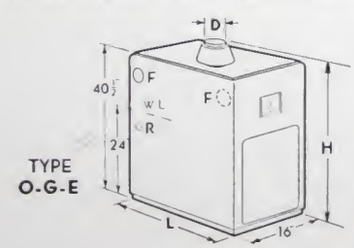




* 4-G-6 to 4-G-11 - 2 - 6" Flows; 2 - 5" Returns
4-G-13 to 4-G-21 - 4 - 6" Flows; 3 - 5" Returns

4-G-22 to 4-G-31 - 6 - 6" Flows; 4 - 5" Returns
4-G-33 to 4-G-41 - 8 - 6" Flows; 5 - 5" Returns





BOILER NUMBER	RATINGS - Sq. Ft. Radiation				Dimensions (inches)		D Diam. FLUE (inches)
	HOT WATER		STEAM				
	AGA Output	Supplies Installed	AGA Output	Supplies Installed	L	H	
TYPE 1-GA for Water Only - 2 - 1½" Flow Connections; 2 - 1½" Returns							
1-GA-4	210	135			13⅜	37¼	3
1-GA-5	280	180			16¾	37¼	4
1-GA-6	350	225			19¾	37¼	4
1-GA-7	420	270			22¾	39	5
TYPE 1-GA-E for Water Only - 1 - 1½" Flow Connection; 1 - 1½" Return							
1-GA-4-E	210	135			19¼	40½	3
1-GA-5-E	280	180			22¼	40½	4
1-GA-6-E	350	225			25¼	40½	4
1-GA-7-E	420	270			28¼	40½	5
TYPE 2-GA for Water Only - 1 - 2½" Flow Connection; 1 - 2½" Return							
2-GA-4	420	270			13⅜	42¼	5
2-GA-5	560	359			16¾	42¼	5
2-GA-6	700	449			19¾	42¼	6
2-GA-7	840	539			22¾	42¼	6
TYPE 2-GA-E for Water Only - 1 - 2½" Flow Connection; 1 - 2½" Return							
2-GA-4-E	420	270			19¼	49⅛	5
2-GA-5-E	560	359			22¼	49⅛	5
2-GA-6-E	700	449			25¼	49⅛	6
2-GA-7-E	840	539			28¼	49⅛	6
TYPE 4-GA for Water Only - 2 - 2½" Flow Connections; 2 - 2½" Returns							
4-GA- 9	1120	725			29	42½	2-5
4-GA-11	1400	915			35	42½	2-6
4-GA-13	1680	1109			41	42½	2-6
TYPE 4-GA-E for Water Only - 2 - 2½" Flow Connections; 2 - 2½" Returns							
4-GA- 8-E	980	630			37¼	54	7
4-GA- 9-E	1120	725			40¾	54	7
4-GA-11-E	1400	915			46¼	54	8
4-GA-13-E	1680	1109			52¼	54	8
TYPE 1-G for Steam or Water - 2 - 4" Flow Connections; 2 - 4" Returns							
1-G- 4	980	631	610	391	19	51	6
1-G- 5	1240	807	775	497	23	55½	7
1-G- 6	1500	980	940	606	27	54¼	8
1-G- 7	1770	1168	1105	715	31	54¾	8
1-G- 8	2030	1353	1270	826	35	55¾	8
1-G- 9	2300	1598	1435	938	39	58½	9
1-G-10	2560	1739	1600	1050	43	59¼	9
1-G-11	2820	1935	1765	1165	47	59¾	10
TYPE 1-G-E for Steam or Water - 2 - 4" Flow Connections; 2 - 4" Returns							
1-G- 4-E	980	631	610	391	32	58¼	6
1-G- 5-E	1240	807	775	497	36	58¼	7
1-G- 6-E	1500	980	940	606	40	58¼	8
1-G- 7-E	1770	1168	1105	715	44	58¾	8
1-G- 8-E	2030	1353	1270	826	48	58¾	8
1-G- 9-E	2300	1598	1435	938	52	58¾	9
1-G-10-E	2560	1739	1600	1050	56	58¾	9
TYPE 4-G for Steam or Water - 6" Flow Connections; 5" Returns For number of connections see *							
4-G- 6	3200	2214	2000	1332	27	70	11
4-G- 7	3840	2676	2400	1624	31	70¾	12
4-G- 8	4480	3151	2800	1922	35	73	13
4-G- 9	5120	3634	3200	2214	39	73¾	14
4-G-10	5760	4114	3600	2505	43	75½	15
4-G-11	6400	4571	4000	2793	47	76	16
4-G-13	7680	5486	4800	3387	61¼	70¾	2-12
4-G-15	8960	6400	5600	4000	69¼	73	2-13
4-G-17	10240	7314	6400	4570	77¼	73¾	2-14
4-G-19	11520	8230	7200	5143	85¼	75½	2-15
4-G-21	12800	9143	8000	5714	93⅛	76	2-16
4-G-22	13440	9600	8400	6000	103½	73	3-13
4-G-25	15360	10970	9600	6857	115½	73¾	3-14
4-G-28	17280	12343	10800	7714	127½	75½	3-15
4-G-31	19200	13714	12000	8570	139½	76	3-16
4-G-33	20480	14625	12800	9145	153⅜	73¾	4-14
4-G-37	23040	16457	14400	10285	169½	75½	4-15
4-G-41	25600	18286	16000	11430	185	76	4-16
TYPE O-G for Steam Only - 2 - 2½" Flow Connections; 1 - 1½" Return							
0-G-4			270	173	14	53	4
0-G-5			360	230	17	54	5
0-G-6			450	289	20	54	6
0-G-7			540	346	23	54	6
TYPE O-G-E for Steam Only - 3" Flow Connections; 1½" Returns (1 each, Nos. 4 to 6; 2 F, 1 R, Nos. 7 to 11)							
0-G- 4-E			255	163	29	51⅜	5
0-G- 5-E			340	218	33	52¼	5
0-G- 6-E			425	272	37	51¾	6
0-G- 7-E			510	327	41	52¼	6
0-G- 9-E			680	436	49	54¼	7
0-G-11-E			850	545	57	54¼	8

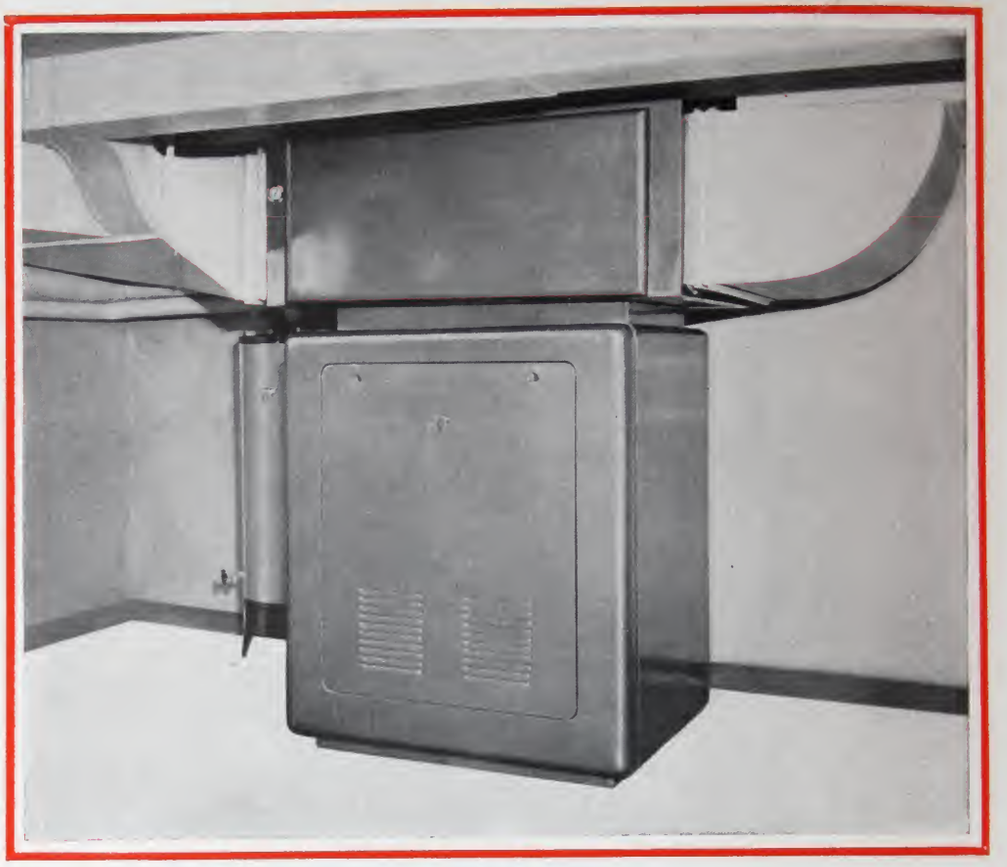
40 WEST 40TH STREET
NEW YORK, N.Y.
AMERICAN GAS PRODUCTS CORPORATION
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

AGP Gas-Fired Air Conditioners

By—

The AGP Type 2-FE air conditioner is a direct, gas-fired mechanical furnace which provides completely automatic, central, recirculating warm-air heating. Air is filtered, heated, humidified, delivered and returned through ducts by means of forced circulation.

The Conditioner is completely encased in an Empire type jacket of furniture steel finished in gun-metal enamel, and contains (a) *Heating Unit* consisting of cast-iron cored sections forming an efficient heating element with a single combustion chamber under the same jacket alongside the heating sections, a plenum compartment containing the humidifier, and (b) *Fan Motor Unit* mounted above the Heating Unit, the two units operating on the Counter Flow Principle of heat transfer. Air is blown down over the outer surfaces of the heating sections in opposition to the upward flow of hot gases on the inside of the heating surface, affording a high efficiency of heat transfer with minimum heating surface. For domestic hot water equipment recommended for use in combination with the AGP air conditioner see Page 10.



EQUIPMENT AND CONTROLS

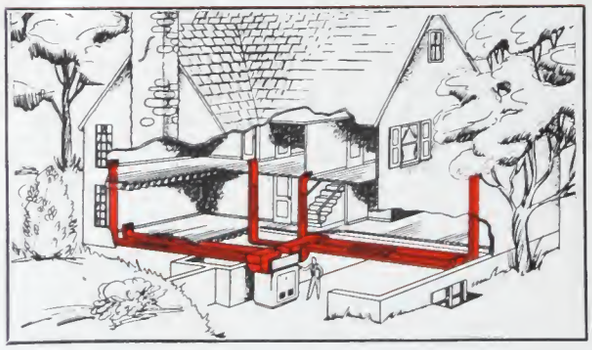
Gas Burners and Gas Valves. Standard AGP burner equipment is used with a Thermotor Throttling valve, and single thermostatic pilot. Gas supply to burners is directly controlled by room thermostat, while air discharge temperature is automatically and mechanically controlled by temperature throttling element. In addition, the stack limit control, a non-resetting safety control located in the flue, shuts off supply of gas to the thermostatic pilot and thus closes the main valve should the flue temperature exceed a predetermined maximum.

Fan Motor Unit has intake and discharge connections on opposite sides, for horizontal duct connections. It contains air filters of the Arco cellular replacement type, made of corrugated fibre board, viscous-coated, and an American Blower "Sirocco" squirrel cage fan mounted on rigid steel frame with rubber vibration dampeners. It may be erected with intake or outlet to conditioned space on either right or left side of assembled unit.

Fan Control. The fan is operated by a heat-operated stack fan switch, which turns fan on in advance of final limit of flue temperature, while thermal efficiency is relatively high, and turns fan off when flue temperature has dropped to point at which little stored heat remains in heating sections.

Humidifier Equipment. Humidification is supplied in a standard assembly by means of an evaporating plate humidifier, with adjustable water feed. Spray humidifier equipment with solenoid valve and humidistat is available as optional equipment for automatic control of humidity.

Instrument Panel. All controls are mounted on a panel placed over the front of the inner casing, and readily accessible by removal of front jacket panel.



A typical installation of the AGP Air Conditioner is shown above, with return and discharge duct connections. Heating unit, controls and fan-motor unit are completely encased in a lustrous enamel jacket. Diagram at the left shows a typical air conditioning duct system outlined in red. Except for the compact area occupied by the Air Conditioner, the entire basement is available for living area.

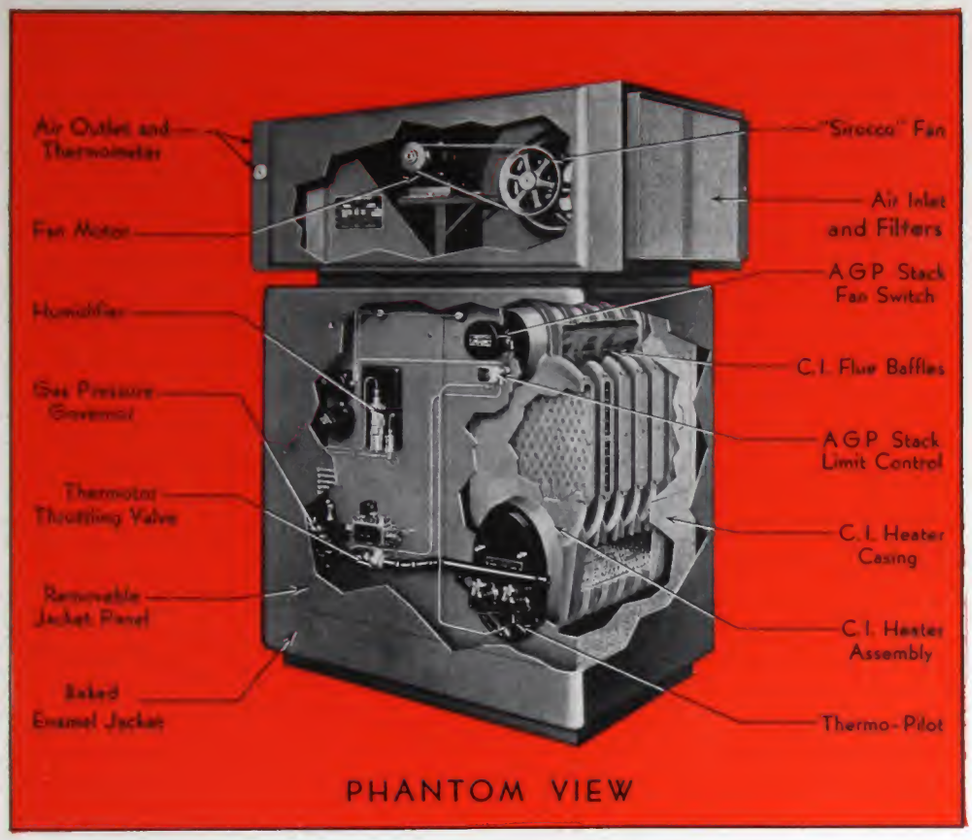
I - SELECTION FACTORS - Capacity Ratings

Model Number	AGA Rating Input Btu/hr.	AGP Guaranteed Rating			Conditioned Space Cu. Ft.	Maximum Fan CFM at 65°F
		Input Btu/hr.	Output at Bonnet Btu/hr.	Output at Registers Btu/hr.		
2-FE-4-100	100,000	90,000	72,000	64,800	10,600	660
2-FE-4-80	100,000	100,000	80,000	72,000	14,700	920
2-FE-5-100	125,000	112,500	90,000	81,000	13,300	830
2-FE-5-80	125,000	125,000	100,000	90,000	18,400	1150
2-FE-6-100	150,000	135,000	108,000	97,200	15,800	990
2-FE-6-80	150,000	150,000	120,000	108,000	22,000	1375
2-FE-8-100	200,000	180,000	144,000	129,600	21,100	1320
2-FE-8-80	200,000	200,000	160,000	144,000	29,400	1840
2-FE-10-100	250,000	225,000	180,000	162,000	26,600	1660
2-FE-10-80	250,000	250,000	200,000	180,000	36,600	2290
2-FE-12-100	300,000	270,000	216,000	194,400	31,700	1980
2-FE-12-80	300,000	300,000	240,000	216,000	44,000	2750

AMERICAN GAS PRODUCTS CORPORATION 40 WEST 40TH STREET
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION NEW YORK, N.Y.

AGP Gas-Fired Air Conditioners

By—



PHANTOM VIEW

SELECTION

Total heat loss should be calculated in the usual manner, and expressed in Btu per hour (follow standard methods). This calculation, together with a calculation of the cubic content of the space to be conditioned will permit selection of the proper size AGP air conditioner from the data given in Table 1. Heat loss should not exceed AGP guaranteed rating for output at registers, and cubic content should not exceed rating for maximum conditioned space.

Two sizes of fan motor unit are available for each of 6 sizes of heating units. In each of these, the smaller fan provides adequate air delivery (4 changes per hour) in relation to heat loss for the average uninsulated house; the larger provides adequate air delivery for an insulated house, in which the heat loss is identical but the cubic content is greater.

Overall clearance dimensions and sizes of all connections are given in Table II.

Duct Design. The conditioner is ordinarily assembled with intake of return air on right hand side and discharge outlet of warm air on left hand side. This assembly is reversible. In addition, the entire fan motor unit is reversible, front to back.

Kitchens, bathrooms and garages should never be provided with return air connections, as the air which is supplied to them should not be recirculated. If exhaust fans are used in any of these spaces, the amount of air exhausted should be allowed for in estimating heat loss, selecting the conditioner and designing the supply duct. The use of stud or joist spaces for return air ducts is not considered good practice in a trunk duct system.

All duct work should be not less than 26 gauge galvanized iron or steel with double locked seams and jointed with standard "S" drive clips.

Branch ducts or risers should have a cross-sectional area not less than 18 square inches, with no dimension smaller than 3". Maximum ratio of width to depth should be not more than 3 to 1 for trunks or basement branches, and 4 to 1 for risers.

All branch take-offs should be full-size, on a radius 1½ times the width of the branch, with minimum inside radius in main and trunk lines not less than ¾ the width of the duct.

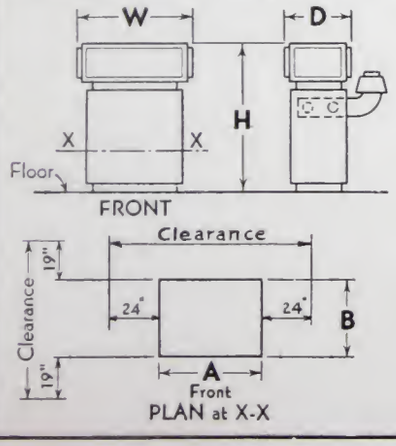
All risers and fittings should be supported from studs or joists with heavy galvanized band iron.

Volume dampers should be installed in all main ducts, and in all branch ducts near their connection with main duct. Dampers should be of locking type with indicator.

INSTALLATION

The conditioner should be located not less than 19" from front and rear walls so that all controls are accessible, and not less than 24" from side walls so that heating surfaces are readily accessible for cleaning. Installation should conform to good practice recommendations listed on page 3. See pages 8 and 9 for other conditioners.

II - CLEARANCES, DIMENSIONS and SPECIFICATIONS

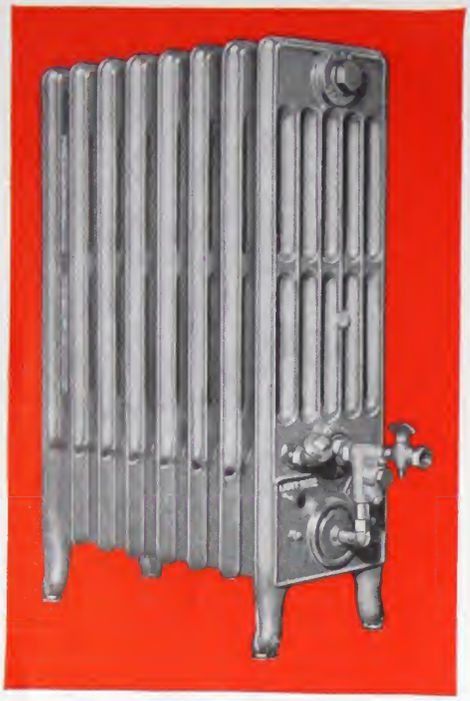


Model Number	Fan Motor		Size of Gas Cont. Valve (inches)	Number and Diameter of Flue Connections	Intake and Discharge Duct Conn. (in.)	Dimensions in Inches					Approx. Shipping Weight (lb.)
	Unit No.	H. P.				W	H	D	A	B	
2-FE-4-100	109-A	1/6	1	5	14½ x 24	56½	72½	29	50	29	1210
2-FE-4-80	109-B	¼	1	5	14½ x 24	56½	72½	29	50	29	1210
2-FE-5-100	109-B	¼	1	6	14½ x 24	56½	72½	29	50	32	1290
2-FE-5-80	112-A	¼	1	6	18½ x 28½	60	76½	34	50	32	1355
2-FE-6-100	109-B	¼	1	6	14½ x 24	56½	72½	29	50	35	1355
2-FE-6-80	112-A	¼	1	6	18½ x 28½	60	76½	34	50	35	1420
2-FE-8-100	112-B	¼	1¼	7	18½ x 38	60	76½	44	50	50	1760
2-FE-8-80	112-C	⅓	1¼	7	18½ x 38	60	76½	44	50	50	1755
2-FE-10-100	209-A	⅓	1¼	8	14½ x 58½	60	77½	64	50	62	2275
2-FE-10-80	212-A	½	1¼	8	18½ x 58½	60	81½	64	50	62	2315
2-FE-12-100	209-B	½	1¼	8	14½ x 58½	60	77½	64	50	62	2450
2-FE-12-80	212-B	¾	1¼	8	18½ x 58½	60	81½	64	50	62	2500

40 WEST 40TH STREET NEW YORK, N.Y.
AMERICAN GAS PRODUCTS CORPORATION
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

AGP Radiators, Floor Furnaces, Space Heaters and Conditioners

By—



Two compact AGP gas-fired space heaters are illustrated: the Floor Furnace (directly above), and the Unit-or (above right)

AGP Unit-or Capacities & Dimensions

UNIT-OR Number	INPUT Btu per hr.	RATING Equiv. Sq. Ft. Steam		DIMENSIONS (ins.)	
		without flue	with flue	Height	Floor Area
1	16,800	70	56	28½	12¾ x 31
2	21,600	90	72	32½	12¾ x 31
3	26,400	110	88	38½	12¾ x 31

AGP GAS FIRED RADIATORS
(Vented and Unvented)

Unvented

No. of Sections	Column	Height in Inches	Rating Sq. Ft.	Length Over All
26" 4	6	26	34	15½"
5	6	26	41	18
6	6	26	48	20½
7	6	26	55	23
8	6	26	62	25½
9	6	26	68	28
10	6	26	75	30½
12	6	26	88	35½
15	6	26	108	43
18	6	26	129	50½
32" High 4	6	32	42	15½
5	6	32	51	18
6	6	32	60	20½
7	6	32	70	23
8	6	32	79	25½
9	6	32	88	28
10	6	32	97	30½
12	6	32	116	35½
15	6	32	143	43
18	6	32	168	50½
38" 4	5	38	41	15½
6	5	38	60	20½
8	5	38	78	25½
10	5	38	97	30½
12	5	38	116	35½
15	5	38	144	43

Radiators—5 col.—8" in width—6 col. 9¾" in width.

Vented
26 in. and 38 in. High—5 Columns

No. of Sections	Rating Sq. Ft.		Length Inches Both 26" and 38"
	26" High	38" High	
4	12	22	15
5	15	27½	17½
6	18	33	20
8	24	44	25
10	30	55	30
12	36	66	35
15	45	82½	42½
18	54	99	45
20	60	110	50
22	66	121	55
25	75	137	62½

AGP FLOOR FURNACE Capacities and Dimensions

FLOOR FURNACE Number		INPUT Btu per hr.	OUTPUT Btu per hr.	Approx. Capacity of Space Heated (Cu. Ft.)		DIMENSIONS (inches)	
Cast Grille	Steel Grille			0°	35°	Depth (below floor)	Floor Opening
21 CG	21 SG	20,000	14,000	3,000	6,000	38	14½ x 22½
31 CG	31 SG	35,000	24,500	4,500	9,000	38	18⅜ x 26⅜
41 CG	41 SG	50,000	35,000	6,000	12,000	38	22⅜ x 28⅜
51 CG	51 SG	75,000	52,500	9,000	18,000	40	26½ x 32½

AGP Gas Fired Air Conditioners

The AGP Air Conditioner, Type K is illustrated at the right. Designed as a companion to the Type 2-FE Conditioner suitable for use in the small residence, the Type K Conditioner supplies filtered, heated and humidified air by forced circulation through a system of delivery and return ducts. It is encased in a gun-metal enamel jacket.

The AGP Gas-Fired Air Conditioner, Type K is a forced warm air furnace designed for use in the modest dwelling. It contains a heating unit of heavy Armco copper bearing steel which is acetylene welded gas-tight, and may be automatically controlled by room-thermostat.

The Type K Conditioner is equipped with a glass wool type filter which is readily removable for inexpensive replacement. Humidification may be supplied automatically with a Thermo-Drip Humidifier, which is furnished as optional equipment.

The complete assembly is encased in a metal jacket finished in baked-on smooth gun-metal enamel.

Capacity ratings and dimensions are listed in the accompanying table. Selection should be based on output ratings in accordance with procedure outlined on Page 7. Installation should conform to standards of good practice described on Page 3. Design and installation of ductwork should conform to practices outlined on Page 7.

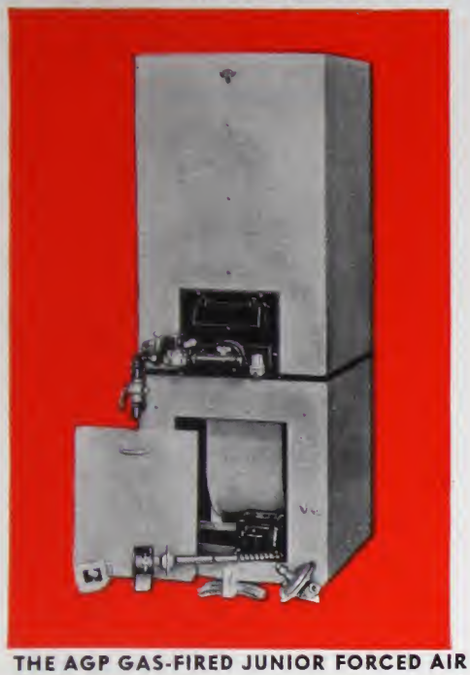
AGP Conditioner - Type K

UNIT Number	BTU per hour		DIMENSIONS (ins.)		
	Input Capacity	Register Output	H	W	D
9KS	90,000	60,750	53	27	47
12KS	120,000	81,000	57	32	57½
16KS	160,000	108,000	57	42	69
20KS	200,000	135,000	61	47	79
26KS	260,000	175,500	65	54	86½

AMERICAN GAS PRODUCTS CORPORATION 40 WEST 40TH STREET
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION NEW YORK, N.Y.

AGP Warm Air Furnaces and Gas Converters

By—



THE AGP GAS-FIRED JUNIOR FORCED AIR FURNACE, illustrated above, is designed for use in small dwellings, and may be installed in a closet, alcove or kitchen corner. It contains a heating element and radiation section of steel, air filters and blower, encased in an insulated steel jacket finished in baked-on smooth gray enamel. Capacity ratings and dimensions are listed in the table at right.

GRAVITY WARM AIR FURNACE

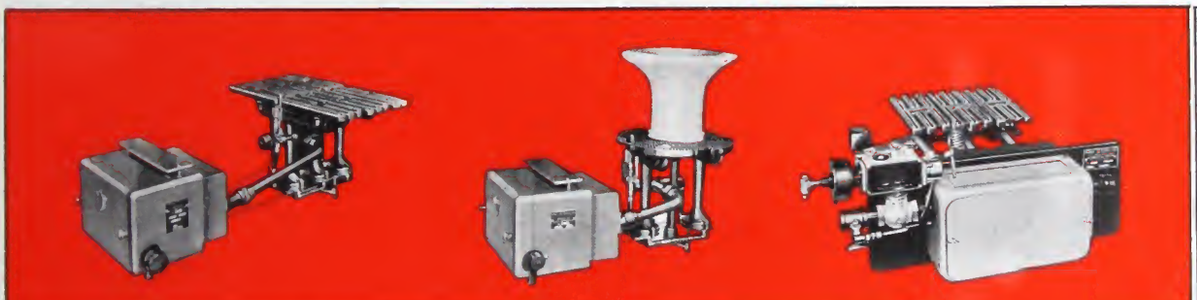
ITEM		Furnace Number				
		SG32-12CS	SG36-14CS	SG42-18CS	SG50-21CS	SG56-24CS
Capacity in 000's Btu/hr.	Input (AGA)	90	120	160	200	260
	Output	67.5	90	120	150	195
Dimensions (inches)	Width	27	32	41½	46½	53½
	Length	27	32	41½	46½	53½
	Height (overall)	58¾	62½	62½	66½	70½
	Canopy op'g. (square)	14¾	19¾	29¼	34¼	41¼

Junior FORCED AIR FURNACE

ITEM		Model Number		
		27-12	36-14	42-18
Capacity Btu/hr.	Input	90,000	120,000	160,000
	Register Output	60,750	81,000	108,000
Overall Dimensions (inches)	Depth	39¼	50¾	60¼
	Width	27	32	41½
	Height	75	79	81½

THE AGP GAS-FIRED STEEL GRAVITY FURNACE, provides semi-automatic warm air heating by gravity circulation which may be made completely automatic by the addition of a room thermostat. It contains a steel heating element enclosed in a galvanized or gun-metal enamel finish casing; optional equipment includes either manual or automatic type humidifier.

Selection should be based on capacity ratings as listed in the accompanying table, in accordance with procedure outlined on Page 3.



ITEM		AGP RECTANGULAR Convertor Number (S - Steam, W - Water, or F - Furnace)																			
		152	153	154	155	182	183	184	185	186	187	243	244	245	246	247	303	304	305	306	307
Maximum Input in Thousand Btu per hour		140	210	280	350	160	240	320	400	480	560	330	440	550	660	770	375	500	625	750	875
Minimum Dimensions Combustion Chamber (in inches)	W	15½	15½	15½	15½	18½	18½	18½	18½	18½	18½	24½	24½	24½	24½	24½	30½	30½	30½	30½	30½
	L	15¼	20	24¾	29½	16¼	21	25¾	30½	35¼	40	23	27¾	32½	37¼	42	25	29¾	34½	39¼	44

AGP RED FLASH Convertor Number (S or W)	Maximum Input Btu/hr. (in 000's)	Sq. Ft. Direct Radiation Installed	
		S	W
I-R-5	116.8	235	375
I-R-6	134.4	270	430
I-R-7	160.0	320	510
I-R-8	177.6	355	570
I-R-9	203.2	405	650
I-R-10	220.8	440	710
I-R-11	246.4	495	790

AGP ROUND Convertor Number (S, W, or F)	Maximum Input Btu/hr. (in 000's)	Diameter Burner (inches)
13-A	150	13
15-A	180	15
19-A	240	19
23-A	360	23

AGP GAS CONVERTORS for converting coal or oil-fired steam, hot water, or warm air systems to gas-fired systems controlled by room thermostat, are of three types:

AGP Rectangular Convertor for any rectangular boiler or furnace. Careful choice should be made to obtain the required input and proper burner area, suited to the individual fire box cross section.

AGP Round Gas Convertor for any round boiler or furnace, and especially designed for Arco round boilers, provides increased boiler efficiency.

AGP Redflash Convertor, for Ideal No. 1 Redflash boilers. Convertor numbers correspond to numbers of Ideal boilers for which they are designed.

Equipment includes complete burner assembly, adjustable gas orifices and air control embodied in attractive chamber which has a minimum extension into basement space.

Control equipment consists of: Thermotor gas valve with vapor tension thermostatic pilot providing complete control by room thermostat of any selection, and mechanical throttling and limit control as described under Ideal Boilers, Page 4.

Selection should be based on the following formulae and input ratings given in the accompanying tables (check adequacy of existing installation).

Warm Air Installation — Btu input = heat loss of building (Btu/hr.) x 1.56.

Steam and Hot Water Installations — Btu input = heat loss of building (Btu/hr.) x F (see following table).

Sq. Ft. Steam Rad. Reqd.	Sq. Ft. H.W. Rad. Reqd.	Factor "F"
200	350	2.11
250	400	2.09
300	470	2.04
400	640	2.00
500	800	1.95
600	1000	1.90
700	1100	1.83

AGP Gas-Fired Hot Water Heaters

By—

DESCRIPTION

Three types of AGP automatic gas-fired storage water heaters are available in a wide range of sizes for domestic and small commercial use: AGP Regular, the Dictator, and AGP Clipper; varying only in mechanical principle of flue design, all three types are manufactured in approximately similar capacities, and will yield equal efficiencies. Choice among the three types will be governed by preference for type of flue or finish color of exterior jacket.

AGP Regular is made in five sizes ranging from 20 to 75 gallons, with tank of galvanized steel or copper strengthened to withstand hydrostatic pressure of 300 pounds, and steel jacket finished in ivory and black crystalline enamel.

The Dictator is made in 4 sizes ranging from 15 to 40 gallons, with steel or strengthened copper tank, and steel jacket finished in baked-enamel in green or gray tones to match the Empire Boiler.

AGP Clipper is made in five sizes ranging from 15 to 40 gallons, with copper-bearing galvanized steel tank only, and steel jacket finished in light green baked-enamel with darker green trim.

FLUE DESIGN

AGP Regular has kidney shaped multiple flues, designed to provide ample heating surface coincident with efficient flue area. Flues form a central water column surrounded by hot flue gases, causing water to heat rapidly and recirculate through tank until adequate uniform temperature is reached. The Dictator has a single flue of large diameter with spiral baffle permitting full utilization of heating surfaces together with proper evacuation of the products of combustion. AGP Clipper has a circumferential flue surrounding tank, which utilizes all the products of combustion on the entire heating surface.

CONTROLS AND EQUIPMENT

All heaters are uniformly equipped with:

(1) a heavy blanket of rock wool *insulation,* extra thick on top surface;

(2) cold water, *Copper Intake Tube* so located that cold water injection will properly affect water temperature control element;

(3) a snap-action valve type thermostatic *water temperature control.*

Additional uniform equipment includes *draft diverter,* adequate *clean-out plugs, drain cocks* and *floor shield.*

Burner and thermostatic pilot equipment varies with type of heater. AGP Regular and Clipper have a C.I. blue-flame drill port burner and a multiport blue flame thermostatic pilot utilizing a bi-metallic element. The Dictator has a patented jet type burner, with individual brass jets, and heat-resisting alloy bell baffle. Thermostatic pilot is built within main burner, and utilizes a bi-metallic element.

Exterior appearance of AGP Gas-fired storage type water heaters is illustrated above. Reading from left to right: AGP Regular, The Dictator, and AGP Clipper. The accompanying diagram shows a standard installation with hot and cold water connections, flue connection, and gas connection indicated

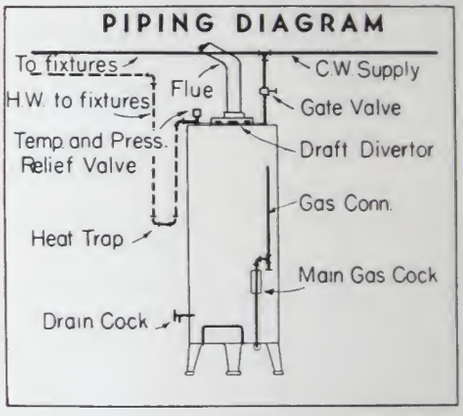
SELECTION

AGP storage water heaters may be used in conjunction with AGP boilers and air conditioners to furnish completely automatic hot water supply, or in conjunction with any heating system where domestic hot water supply is not integral.

Selection of the proper capacity heater should be based on data given in Table 2. Required capacity should be calculated in accordance with standard methods.

INSTALLATION

Installation of AGP automatic storage water heaters should conform to standards of good practice outlined on Page 3.



I - RECOMMENDED USES

Legend: R-Living or Bedroom; K-Kitchen; B-Bathroom; L-Laundry Room; P-Pantry: W-Washstand; C-Barber Chair

Type of Installation	Capacities in Gallons					
	15	20	25	30	40	75
Residences	1-3R K,B,L	3-5R K,B,L	4-7R K,B,L	5-7R K,2B,L	6-9R, K,2B 5-7R, K,3B,L	8-11R, 3-4B, K,P,L
Multi-Family Dwellings						Small 2-Family Apartment
Offices (General) (Business)	✓	✓	✓	✓	✓	✓
Soda Fountains	✓	✓	✓	✓	✓	✓
Beauty Parlors	1W	2-3W	3-5W	5-7W	7-9W	10-15W
Barber Shops	1-2C	3-5C	5-7C	7-8C	8-10C	10-20C
Offices (Doctors) (Dentists)		✓				
Restaurants						✓

AMERICAN GAS PRODUCTS CORPORATION 40 WEST 40TH STREET
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION NEW YORK, N.Y.

AGP Gas-Fired Hot Water Heaters

By—

II - CAPACITIES and DIMENSIONS

In the accompanying diagrams all dimensions are given in inches

H = overall height

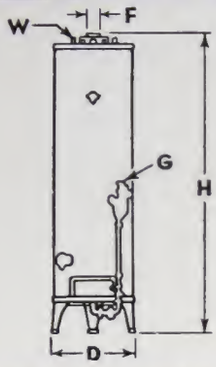
D = overall diameter

F = diameter of flue connection

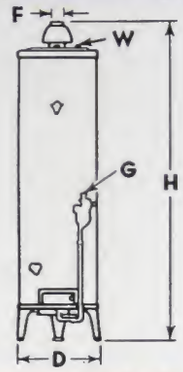
G = size of female gas connection

W = size of water pipe connection

Recovery gallons per hour represent U. S. Gallons raised 60°F. Recovery capacity Imperial Gallons equals Recovery capacity U. S. Gallon ÷ 1.2



AGP REGULAR



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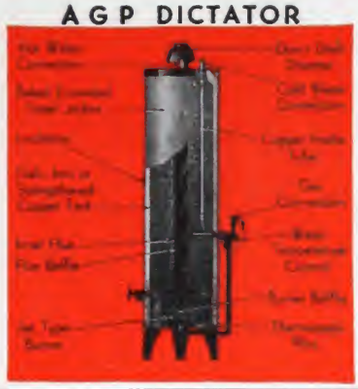

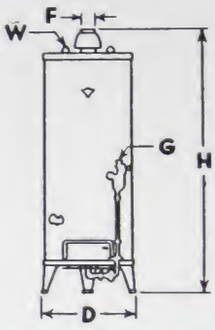

AGP CLIPPER

ITEM															
Unit Numbers	Steel Tank	20-S	25-S	30-S	40-S	75-S	152-S	202-S	302-S	402-S	153-S	203-S	253-S	303-S	403-S
	Strengthened Copper Tank	20-C	25-C	30-C	40-C	75-C	—	202-C	302-C	402-C	—	—	—	—	—
Capacity in Gallons		20	25	30	40	75	15	20	30	40	15	20	25	30	40
Dimensions in Inches	H Overall Height	57⅛	65⅛	54	66	66⅜	50	60	56¾	68¾	49½	49⅝	56¾	63⅞	64¼
	D Diameter	15¾	15¾	19	19	25½	15¾	15¾	19	19	18⅜	20⅝	20⅝	20⅝	22½
	F Flue Diameter	3	3	3	3	4	3	3	3	3	3	3	3	3	3
	G Size of female gas conn.	½	½	½	½	⅜	½	½	½	½	½	½	½	½	½
	W Size of water pipe conn.	¾	¾	¾	¾	1¼	¾	¾	¾	¾	¾	¾	¾	¾	¾
Btu Input		20,000	22,500	25,000	30,000	60,000	17,500	20,000	25,000	28,000	20,000	20,000	30,000	30,000	30,000
Recov. Gals. per hour (60° rise)		28.0	31.5	35.0	42.0	83.9	24.5	28.0	35.0	39.2	28.0	28.0	42.0	42.0	42.0
Gas Consumption Cu. Ft. per hour	500 Btu	40.0	45.0	50.0	60.0	120.0	35.0	40.0	50.0	56.0	40.0	40.0	60.0	60.0	60.0
	550 Btu	36.4	40.9	45.5	54.5	109.0	31.8	36.4	45.5	51.0	36.4	36.4	54.5	54.5	54.5
	800 Btu	25.0	28.1	31.3	37.5	75.0	22.0	25.0	31.3	35.0	25.0	25.0	37.5	37.5	37.5
	1000 Btu	20.0	22.5	25.0	30.0	60.0	17.5	20.0	25.0	28.0	20.0	20.0	30.0	30.0	30.0
	1150 Btu	17.4	19.6	21.7	26.1	52.2	15.2	17.4	21.7	24.3	17.4	17.4	26.1	26.1	26.1
Approx. Shipping Weight	Steel	252	275	310	362	635	206	231	282	325	218	246	270	298	350
	Copper	227	255	299	346	617	—	194	248	291	—	—	—	—	—

40 WEST 40TH STREET
NEW YORK, N.Y.
AMERICAN GAS PRODUCTS CORPORATION
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

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